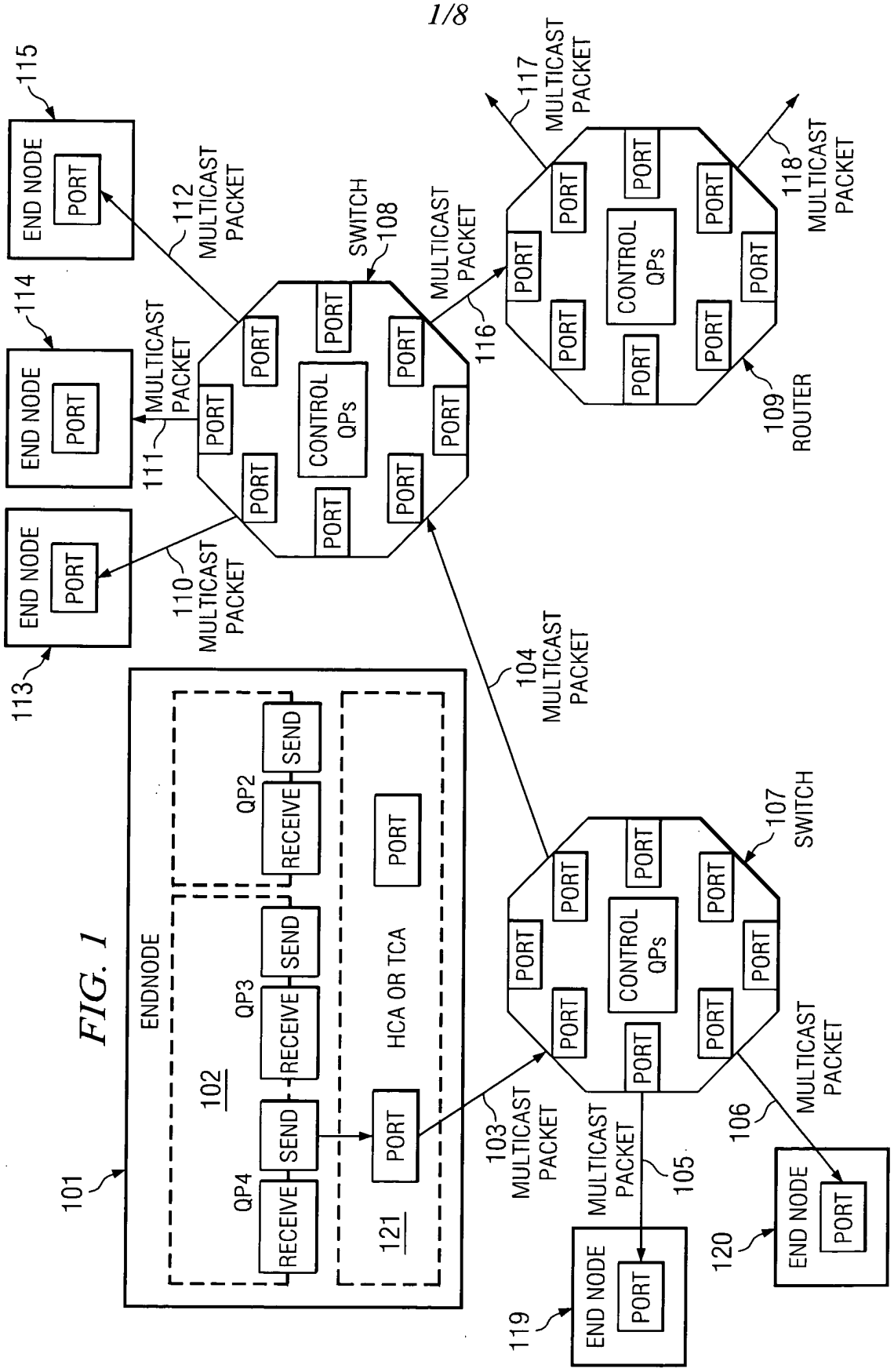

END NODE
PORT
115
112 MULTICAST PACKET
SWITCH 108
114
MULTICAST PACKET
111
MULTICAST PACKET
110 MULTICAST PACKET
113
CONTROL QPs
MULTICAST PACKET
116
117 MULTICAST PACKET
118 MULTICAST PACKET
109 ROUTER
104 MULTICAST PACKET
ENDNODE
101
102
QP2
QP3
QP4
SEND
RECEIVE
HCA OR TCA
121
103 MULTICAST PACKET
105 MULTICAST PACKET
106 MULTICAST PACKET
107 SWITCH
119
120

FIG. 1

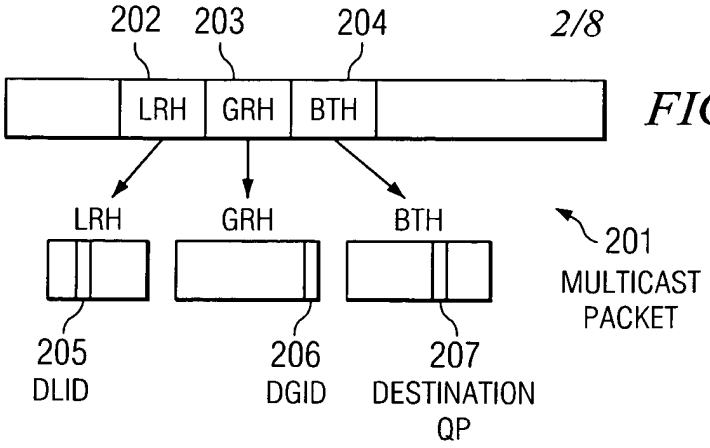



FIG. 2

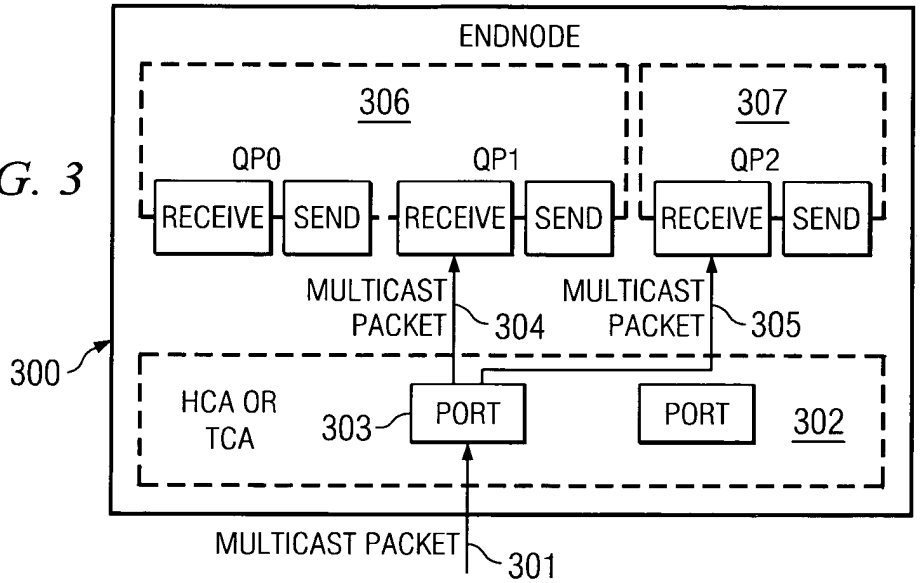



FIG. 3

FIG. 4

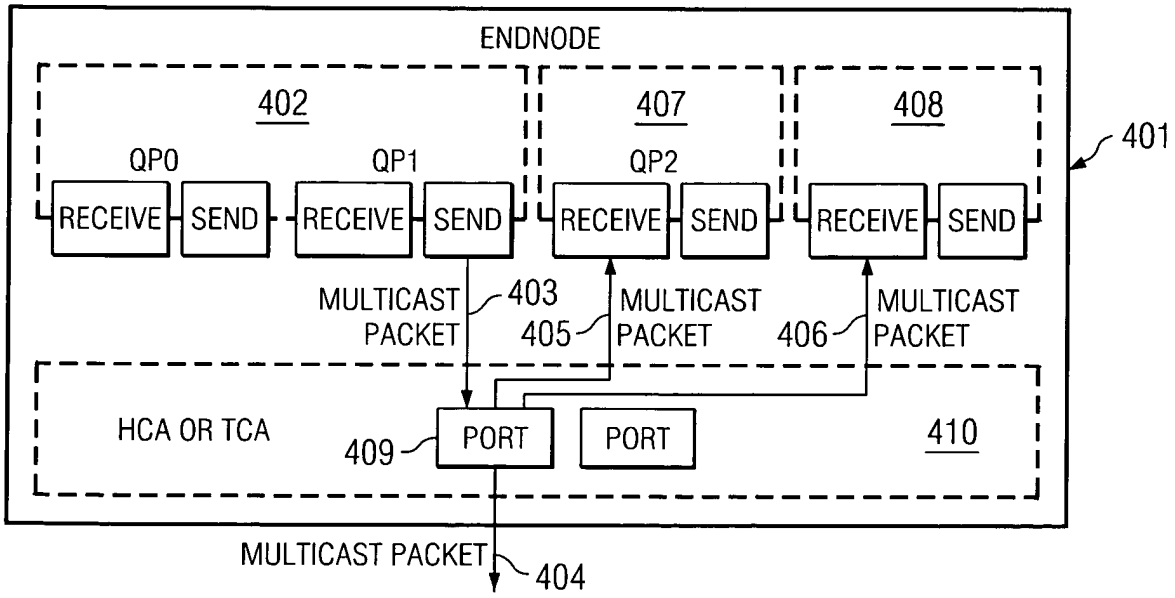


FIG. 5

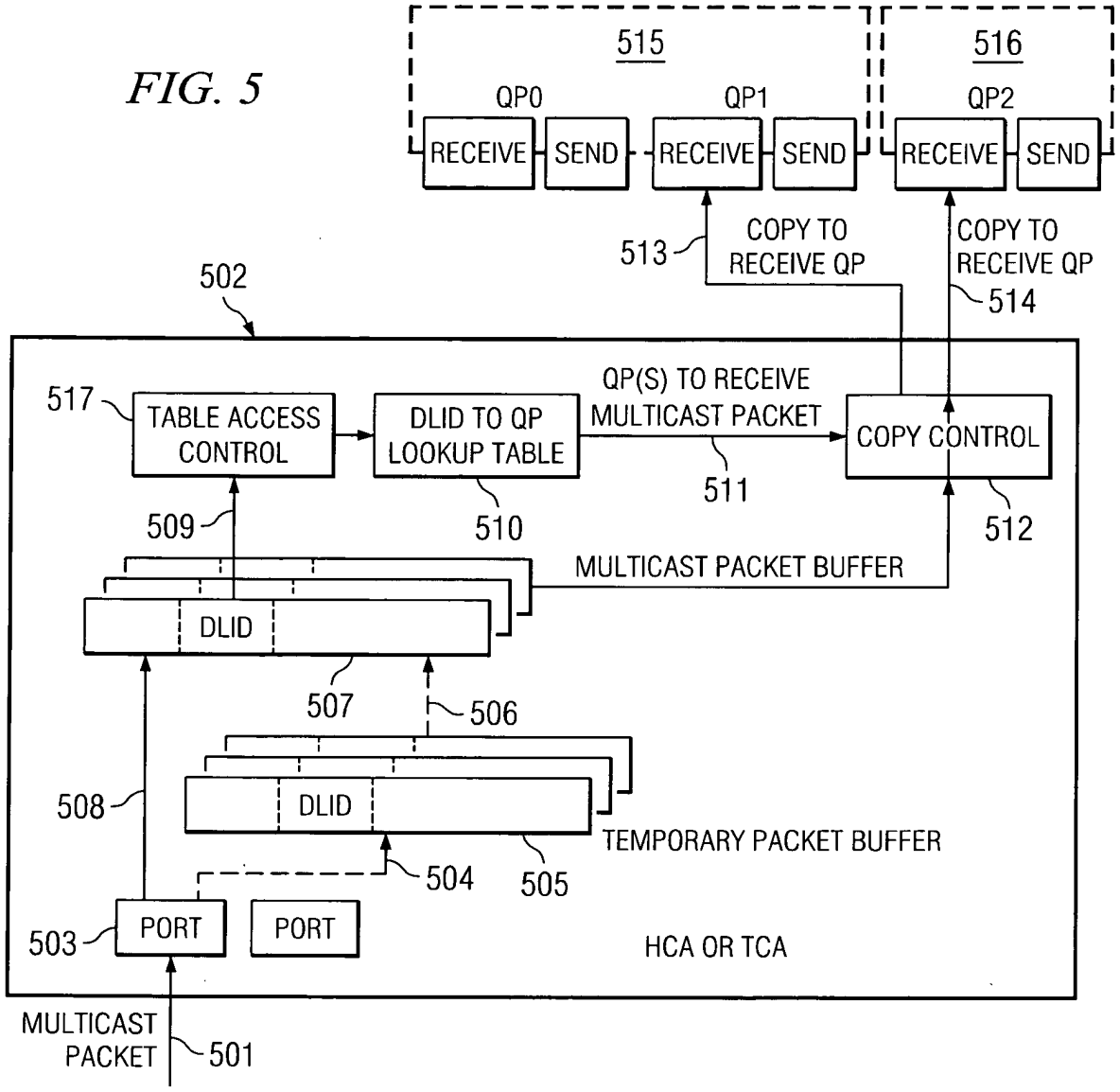
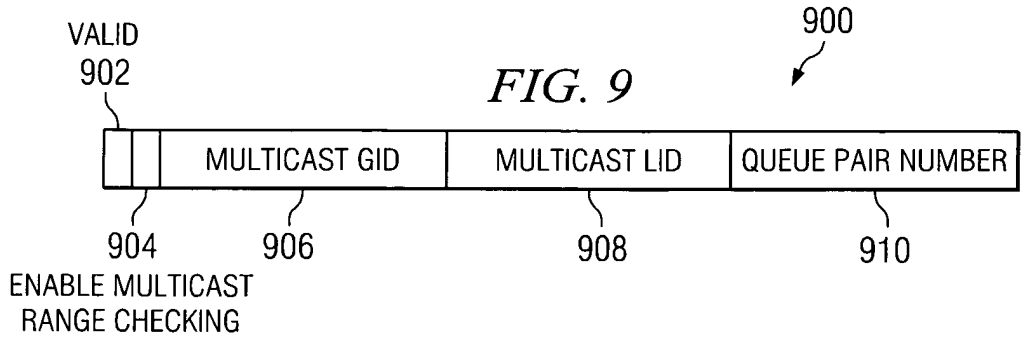

515
516
QP0
QP1
QP2
RECEIVE
SEND
RECEIVE
SEND
RECEIVE
SEND
513
COPY TO RECEIVE QP
COPY TO RECEIVE QP
514
502
517
TABLE ACCESS CONTROL
DLID TO QP LOOKUP TABLE
QP(S) TO RECEIVE MULTICAST PACKET
COPY CONTROL
511
509
510
512
MULTICAST PACKET BUFFER
DLID
507
506
508
DLID
TEMPORARY PACKET BUFFER
504
505
503
PORT
PORT
HCA OR TCA
MULTICAST PACKET
501

FIG. 9


900
VALID
902
MULTICAST GID
MULTICAST LID
QUEUE PAIR NUMBER
904
906
908
910
ENABLE MULTICAST RANGE CHECKING

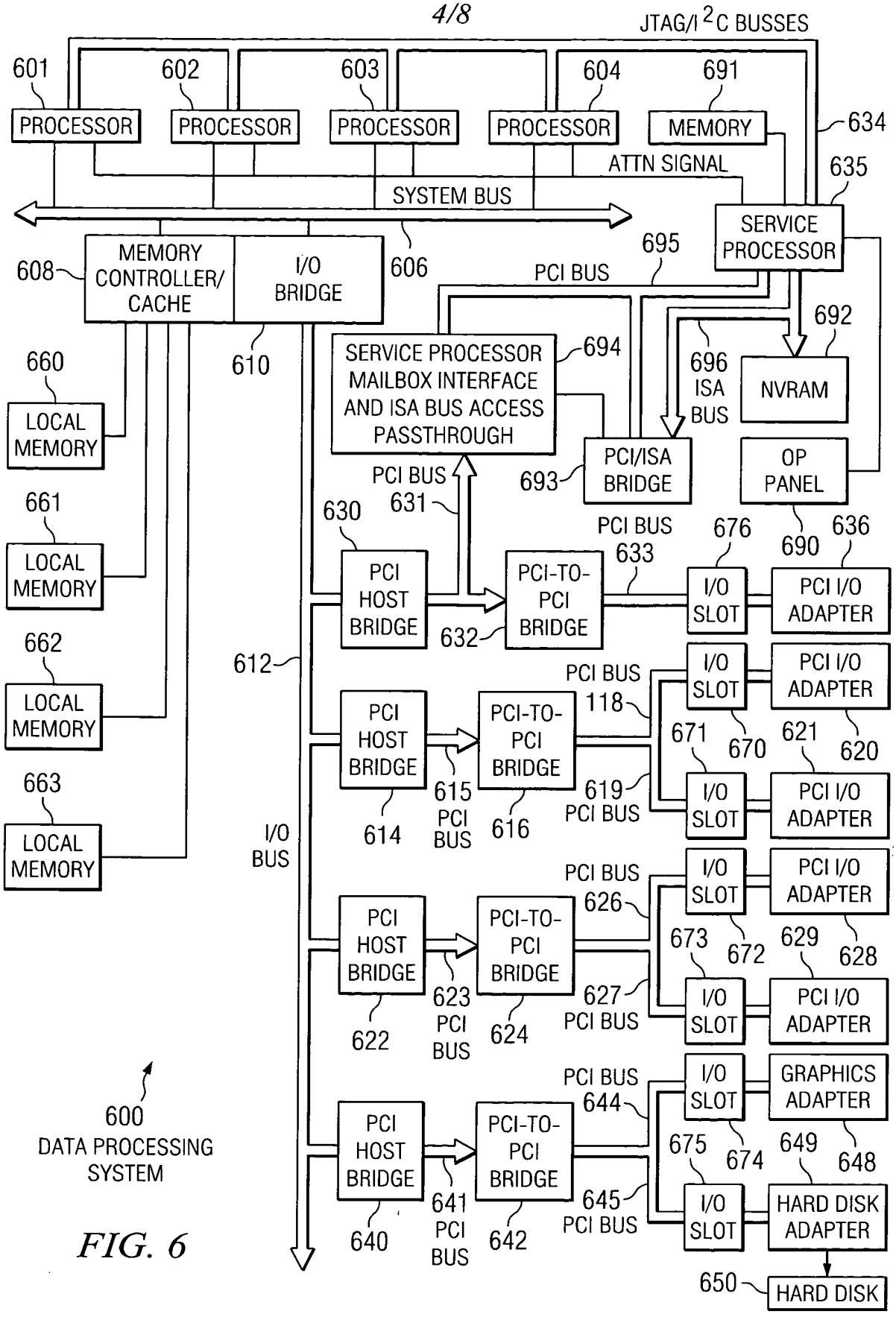

JTAG/I 2C BUSSES
601
602
603
604
691
PROCESSOR
PROCESSOR
PROCESSOR
PROCESSOR
MEMORY
634
ATTN SIGNAL
635
SYSTEM BUS
606
SERVICE PROCESSOR
695
608
MEMORY CONTROLLER/ CACHE
I/O BRIDGE
PCI BUS
692
660
610
SERVICE PROCESSOR MAILBOX INTERFACE AND ISA BUS ACCESS PASSTHROUGH
694
696 ISA BUS
NVRAM
LOCAL MEMORY
PCI BUS
693
PCI/ISA BRIDGE
OP PANEL
661
630
631
PCI BUS
633
676
690
636
LOCAL MEMORY
PCI HOST BRIDGE
PCI-TO-PCI BRIDGE
I/O SLOT
PCI I/O ADAPTER
632
662
612
PCI BUS
118
I/O SLOT
PCI I/O ADAPTER
LOCAL MEMORY
PCI HOST BRIDGE
PCI-TO-PCI BRIDGE
671
670
621
620
663
615 PCI BUS
619 PCI BUS
I/O SLOT
PCI I/O ADAPTER
LOCAL MEMORY
614
616
I/O BUS
PCI BUS
626
I/O SLOT
PCI I/O ADAPTER
PCI HOST BRIDGE
PCI-TO-PCI BRIDGE
673
672
629
628
623 PCI BUS
627 PCI BUS
I/O SLOT
PCI I/O ADAPTER
622
624
PCI BUS
644
I/O SLOT
GRAPHICS ADAPTER
PCI HOST BRIDGE
PCI-TO-PCI BRIDGE
675
674
649
648
641 PCI BUS
645 PCI BUS
I/O SLOT
HARD DISK ADAPTER
640
642
650
HARD DISK
600
DATA PROCESSING SYSTEM

*FIG. 6*

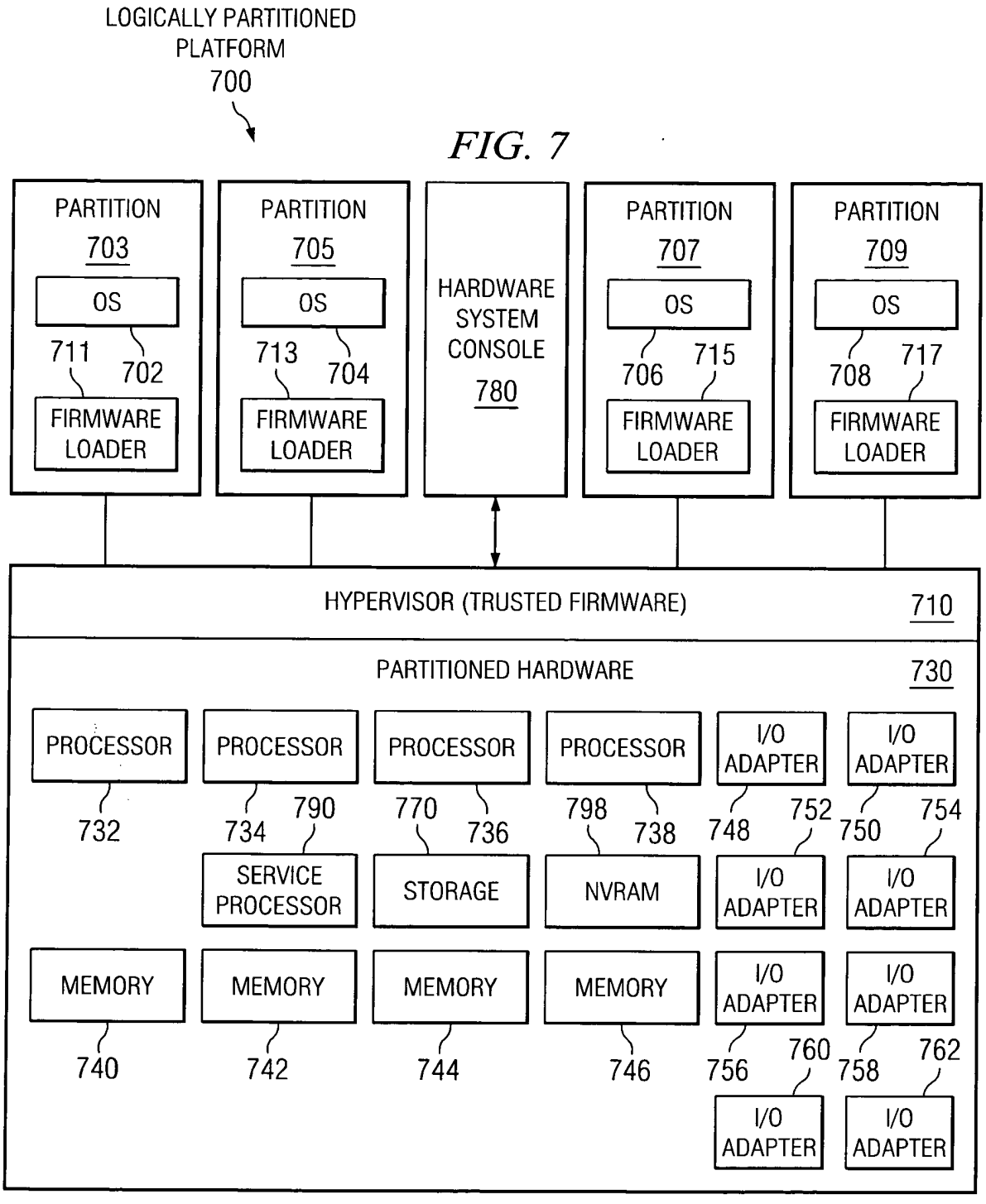

LOGICALLY PARTITIONED
PLATFORM
700
PARTITION
703
OS
711
702
FIRMWARE
LOADER
PARTITION
705
OS
713
704
FIRMWARE
LOADER
HARDWARE
SYSTEM
CONSOLE
780
PARTITION
707
OS
706
715
FIRMWARE
LOADER
PARTITION
709
OS
708
717
FIRMWARE
LOADER
HYPERVISOR (TRUSTED FIRMWARE)
710
PARTITIONED HARDWARE
730
PROCESSOR
732
PROCESSOR
734
790
SERVICE
PROCESSOR
PROCESSOR
770
736
STORAGE
PROCESSOR
798
738
NVRAM
I/O
ADAPTER
748
I/O
ADAPTER
752
I/O
ADAPTER
750
I/O
ADAPTER
754
MEMORY
740
MEMORY
742
MEMORY
744
MEMORY
746
I/O
ADAPTER
756
760
I/O
ADAPTER
I/O
ADAPTER
758
762
I/O
ADAPTER

*FIG. 7*

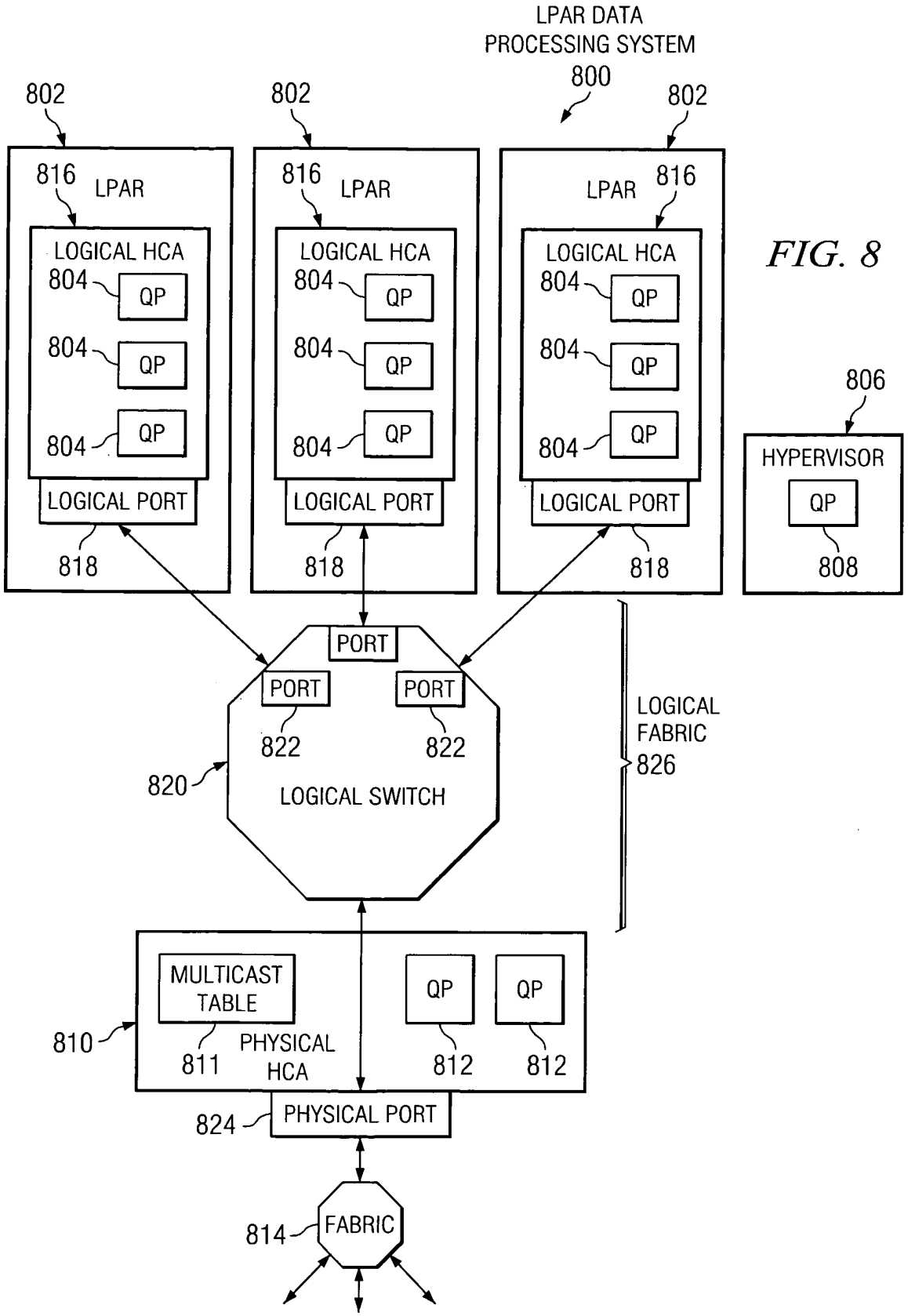

LPAR DATA
PROCESSING SYSTEM
800
802
802
802
816
LPAR
816
LPAR
LPAR
816
LOGICAL HCA
804
QP
804
QP
804
QP
LOGICAL PORT
818
LOGICAL HCA
804
QP
804
QP
804
QP
LOGICAL PORT
818
LOGICAL HCA
804
QP
804
QP
804
QP
LOGICAL PORT
818
806
HYPERVISOR
QP
808
PORT
PORT
PORT
822
822
820
LOGICAL SWITCH
LOGICAL
FABRIC
826
MULTICAST
TABLE
811
PHYSICAL
HCA
QP
QP
812
812
810
824
PHYSICAL PORT
814
FABRIC

*FIG. 8*

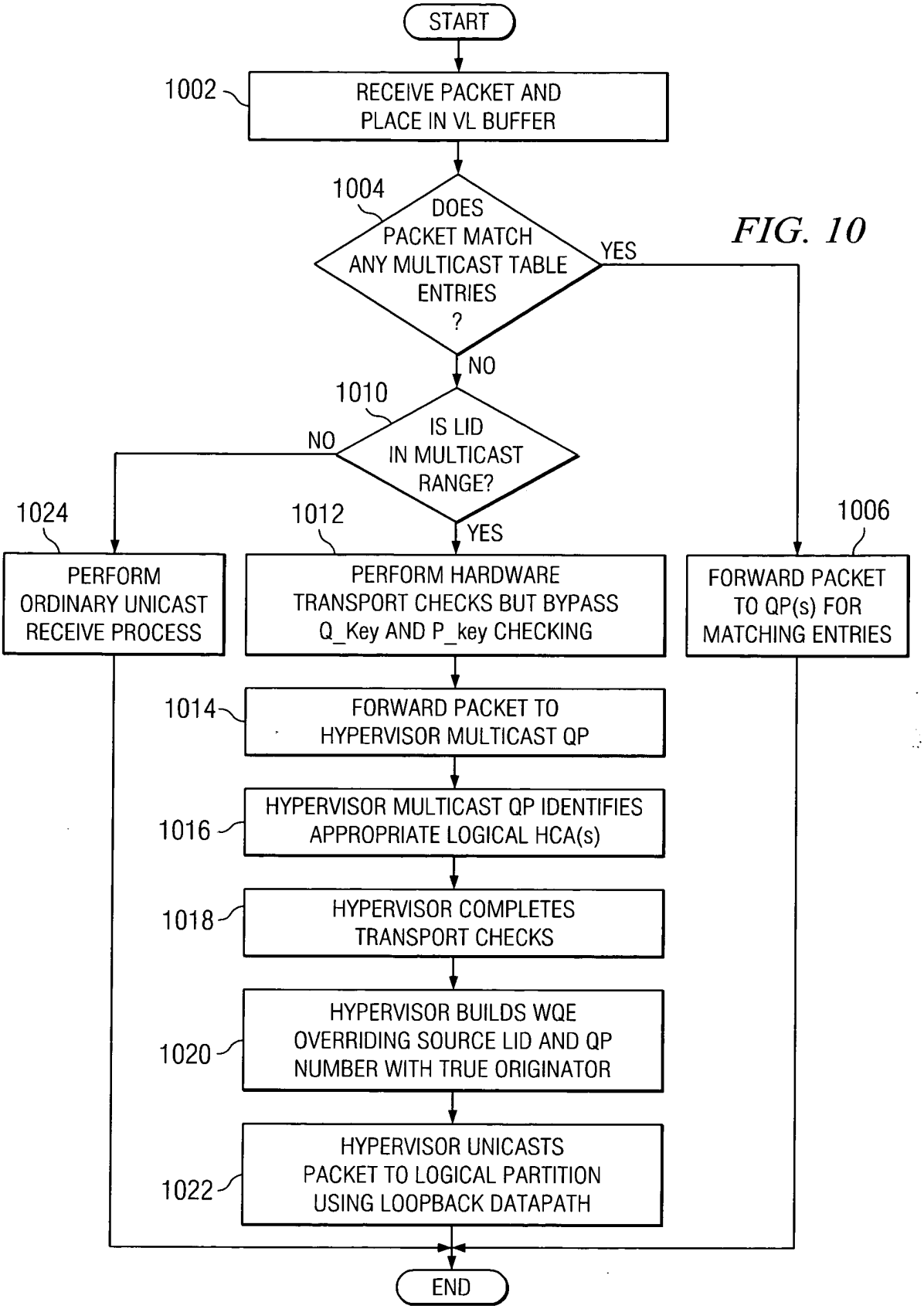

START
1002
RECEIVE PACKET AND PLACE IN VL BUFFER
1004
DOES PACKET MATCH ANY MULTICAST TABLE ENTRIES ?
YES
NO
1010
IS LID IN MULTICAST RANGE?
NO
YES
1024
PERFORM ORDINARY UNICAST RECEIVE PROCESS
1012
PERFORM HARDWARE TRANSPORT CHECKS BUT BYPASS Q_Key AND P_key CHECKING
1006
FORWARD PACKET TO QP(s) FOR MATCHING ENTRIES
1014
FORWARD PACKET TO HYPERVISOR MULTICAST QP
1016
HYPERVISOR MULTICAST QP IDENTIFIES APPROPRIATE LOGICAL HCA(s)
1018
HYPERVISOR COMPLETES TRANSPORT CHECKS
1020
HYPERVISOR BUILDS WQE OVERRIDING SOURCE LID AND QP NUMBER WITH TRUE ORIGINATOR
1022
HYPERVISOR UNICASTS PACKET TO LOGICAL PARTITION USING LOOPBACK DATAPATH
END

*FIG. 10*

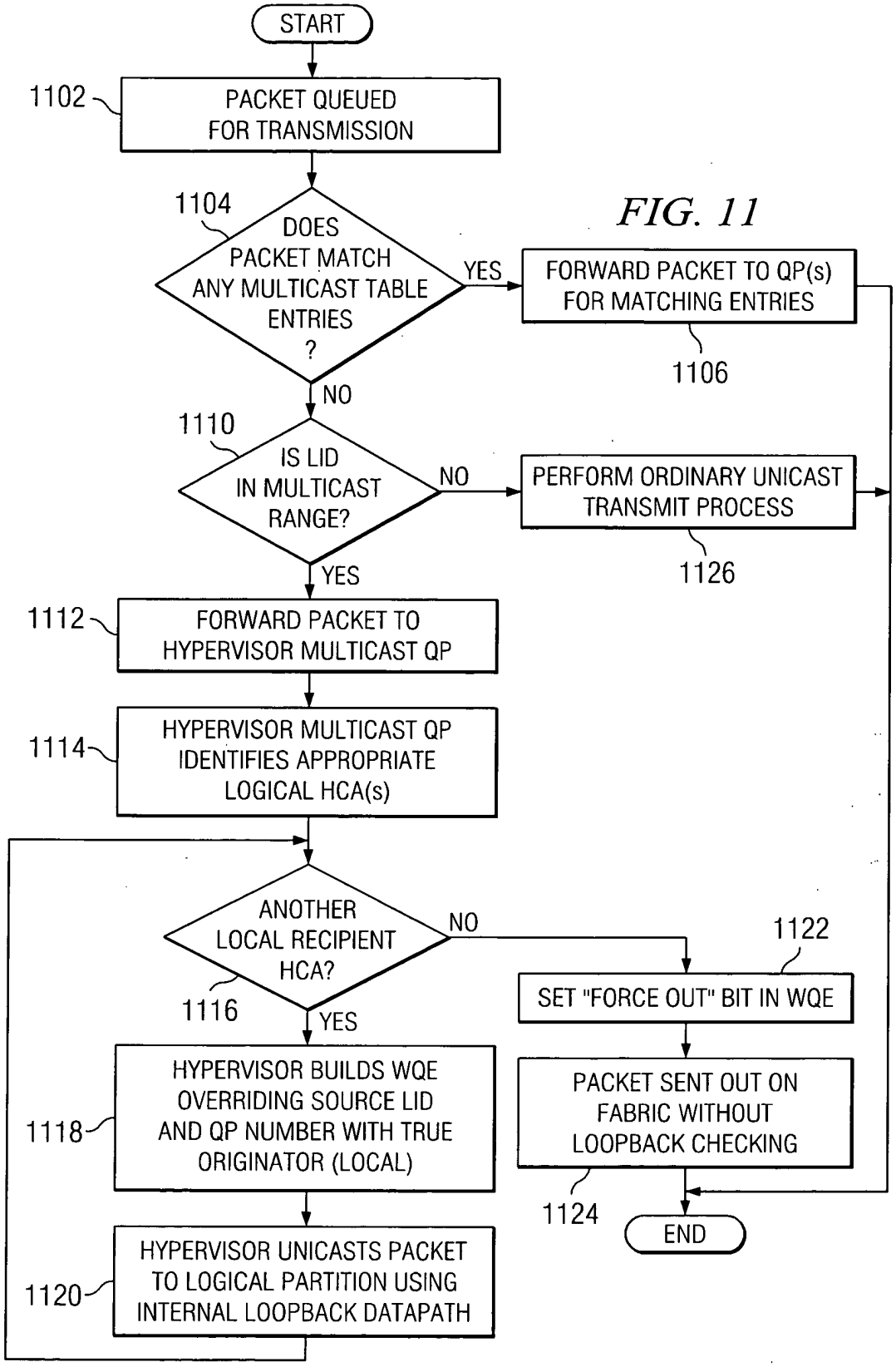

START
1102
PACKET QUEUED FOR TRANSMISSION
1104
DOES PACKET MATCH ANY MULTICAST TABLE ENTRIES ?
YES
FORWARD PACKET TO QP(s) FOR MATCHING ENTRIES
1106
NO
1110
IS LID IN MULTICAST RANGE?
NO
PERFORM ORDINARY UNICAST TRANSMIT PROCESS
1126
YES
1112
FORWARD PACKET TO HYPERVISOR MULTICAST QP
1114
HYPERVISOR MULTICAST QP IDENTIFIES APPROPRIATE LOGICAL HCA(s)
ANOTHER LOCAL RECIPIENT HCA?
NO
1122
1116
YES
SET "FORCE OUT" BIT IN WQE
HYPERVISOR BUILDS WQE OVERRIDING SOURCE LID AND QP NUMBER WITH TRUE ORIGINATOR (LOCAL)
1118
PACKET SENT OUT ON FABRIC WITHOUT LOOPBACK CHECKING
1124
END
HYPERVISOR UNICASTS PACKET TO LOGICAL PARTITION USING INTERNAL LOOPBACK DATAPATH
1120

*FIG. 11*